**Farmers perceptions on trends of onset and session of rainfall in Northern Ghana**

The timing of on set and session of rainfall has wide implications on the cropping calendar activities. This information is recorded by rainfall gauge stations that are sparse. Data recorded from earth observing satellites can complement the sparse gauge stations. However, there is need to verify if the trends measured from satellite data is consistent with the experiences of farmers. The aim of this tool is to collect information on farmers perceptions on the trends of on set and session of rainfall in the Sudan-Savannah agro-ecology located in the Northern, Upper-East and Upper West regions of Ghana. This information will be compared with results obtained from observation gauge network and the estimates from remote sensing satellites. The synthesis of the information is expected to improve agro-advisories on the cropping calendar events such as timely planting.

International Institute of Tropical Agriculture (IITA) conducts this research in collaboration with the Kwame Nkurumah University of Science and Technology (KNUST). In case of any queries, please contact Dr. Winifred Ayinpogbilla Atiah of KNUST [email + phone] or Dr. Kotu Bekele at IITA Tamale office [email + phone].

**Informed consent: Are you willing to participate in this interview? [Please circle the correct answer]**

1= Yes (If “Yes” Continue with the interview)

2= No (If “No”, ask for reason and end the interview].

If No, reason(s) for decline: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of interview: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name of enumerator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Instruction: If the question is not applicable, write NA. Do not leave it blank.**

**1.1 Location**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1.1.1 | Region |  | 1.1.4 | GPS- Latitude (S) |  |
| 1.1.2 | Community |  | Longitude (E) |  |
|  |  |  | Altitude (M) |  |

**Section 1.2 Personal information about the beneficiary/household**

|  |  |  |  |
| --- | --- | --- | --- |
| 1.2.1 | Respondent Name |  |  |
| 1.2.2 | Respondent sex | 1 Male  2 Female |  |
| 1.2.3 | Respondent age |  |  |
| 1.2.4 | Respondent level of education | **0**=no formal education, **1**=Primary, **2**=Secondary, **3**=Certificate, **4**= Diploma,  **5**= Bachelor, **6**=Masters and above, **7**=others (specify) |  |
| 1.2.5 | What is the main economic activity for the household/ or main income source? | 1= crop farming  2= livestock farming  3= fishing  4= formal employment  5 = petty business  6= others (specify): |  |

**Section 2. Crop production information**

What is the main crop you grew in the last cropping season (in terms of area coverage)? [Maize, Groundnuts, cowpea, soybean]

How many acres did you plant the main crop in the last cropping season? [Areas]

How much was the total output of the main crop in the last cropping season? [Kilograms]

**Section 3. Climate assessment**

When did the rain season start during the last growing season? [Dates May to July]

How do you assess the trend of onset of rain during the main cropping seasons in the last 5 years as compared to the situation 30 years ago (1990s)?

Rain starts early

Rain starts late

Rain starts at the same time

How do you forecast/ determine the possible start of growing season rainfall?

[Traditionally after [x] week of [June], Observe pattern of clouds, change in wind direction/intensity, change in temperature intensity, advisory from Ghana Meteorological Agency, deciduous trees stop shedding leaves, .. ]

During the last 5 growing seasons how many instances did you have to replant seeds of the main crop due to poor germination or desiccation of seeds caused by pro-longed drought (false start of rain season)?

[0, 1, 2, 3, 4, 5]

When was the session of the rain season during the last growing season? [Dates May to July]

How do you assess the trend of session of rain during the main cropping seasons in the last 5 years as compared to the situation 30 years ago (1990s)?

Rain ends early

Rain ends late

Rain ends at the same time

Which farming practices did you use in your farm to cope with above change of the start/end of rain season? [Early planting, drought tolerant varieties, early maturing varieties, Intercropping, Replanting, increase seed rate, do nothing, others (specify)]

Comparing the last 5 cropping seasons and 30 years ago (1990's) what is the trend of the amount of growing season rainfall? [Increasing (wetter), no change, reducing (drier)]

Comparing the last 5 cropping seasons and 30 years ago (1990's), how do you evaluate the general temporal distribution pattern of the rain during the main cropping season? [Getting better (more evenly distributed), no change, getting worse (skewed to part of season)]

Comparing the last five cropping seasons and 30 years ago, (1990's) what is the trend of the growing season temperatures. [Warming, no change, cooling]

**Section 4. Timing of cropping calendar events**

When did you start planting the main crop in the last growing season [Dates May to July]?

When was the planting date of the main crop relative to the start of rainfall?

[2 weeks before start, 1 week before start, 1 - 3 days before start, 1 - 3 days after start of rains, 1 week after start, 2 weeks after start]

How important is the timing of the start of the rain season on the yield of the main crop? [Rank in a scale of 1 to 5 (where one representing very important and 5 not important].

Did it rain during or near the harvest time? [Y/N]

If yes above, what impact did the rainfall during or near the harvest time affect the harvested grains?

[Pre-harvest rotting, infestation by molds, delayed harvest, grains attacked by birds/pests….]

**Section 5. Extreme weather risk and livelihood shocks copping strategies)**

|  |  |  |  |
| --- | --- | --- | --- |
| Risk factor | Did you face any of these extreme weather events in your farm activities in the 2020 season | How many times did [RISK] occur in the past ten years? (if zero put 0>> go to next [RISK] type) | How often do you think [RISK] will occur in the next ten years? |
| 1. Drought |  |  |  |
| 2. Floods |  |  |  |
| 3. Hailstorm |  |  |  |
| 4. Heatwave |  |  |  |
| 5. Strong winds |  |  |  |
| 6. Extreme high rainfall |  |  |  |
|  |  |  |  |
|  |  |  |  |